WHAT IS CLAIMED IS:

1. A recombinant polynucleotide comprising a nucleotide sequence encoding a rubredoxin fusion protein comprising an N-terminal rubredoxin constituent and a C-terminal fused polypeptide.

2. The recombinant polynucleotide of claim 1 wherein the nucleotide sequence encoding the rubredoxin fusion protein is operably linked to a promoter.

3. The recombinant polynucleotide of claim 1 wherein the N-terminal rubredoxin constituent of the rubredoxin fusion protein binds a divalent cation.

4. The recombinant polynucleotide of claim 1 wherein the N-terminal rubredoxin constituent of the rubredoxin fusion protein binds Fe^{2+}.

5. The recombinant polynucleotide of claim 1 wherein the N-terminal rubredoxin constituent of the rubredoxin fusion protein comprises rubredoxin from *Desulfovibrio vulgaris*, or a biologically active analogue, fragment, or modification thereof.

6. The recombinant polynucleotide of claim 1 wherein the N-terminal rubredoxin constituent is cleavably linked to the C-terminal fused polypeptide.

7. The recombinant polynucleotide of claim 1 wherein C-terminal fused polypeptide is a detectably labeled polypeptide.

8. The recombinant polynucleotide of claim 1 wherein the C-terminal fused polypeptide is selected from the group consisting of an amyloid peptide, a leptin, a proinsulin, a trypsin inhibitor, the extracellular domain of a luteinizing hormone receptor, and a biologically active fragment, modification or analogue of any of the preceding polypeptides.

9. The recombinant polynucleotide of claim 1 wherein the C-terminal fused polypeptide is an amyloid peptide or a biologically active fragment, modification or analogue thereof.

10. The recombinant polynucleotide of claim 1 wherein the C-terminal fused polypeptide is a hapten.

11. The recombinant polynucleotide of claim 1 wherein the C-terminal fused polypeptide is a polyfusion antigen.

12. The recombinant polynucleotide of claim 1 wherein the rubredoxin fusion protein further comprises an intervening spacer region positioned between the N-terminal rubredoxin constituent and the C-terminal fused polypeptide.

13. The recombinant polynucleotide of claim 11 wherein the intervening spacer region comprises at least one component selected from the group consisting of a proteolytic cleavage site and an affinity purification sequence.

14. An expression vector comprising:

a nucleotide sequence encoding rubredoxin or a biologically active analogue, fragment, or modification thereof;

an intervening nucleotide sequence encoding a spacer region; and

a multiple cloning region comprising at least one restriction endonuclease recognition site.

15. The expression vector of claim 14 wherein the intervening nucleotide sequence comprises all or a portion of the multiple cloning region.

16. The expression vector of claim 15 which is pRUBEX3, wherein pRUBEX3 comprises a nucleotide sequence encoding an affinity tag having at least one amino acid sequence selected from the group consisting of His-His-His-His-His-His (SEQ ID NO:4) and His-Gly-Leu-His (SEQ ID NO:7).

17. The expression vector of claim 14 wherein the intervening nucleotide sequence encodes at least one of a proteolytic cleavage site and an affinity purification sequence.

18. An expression vector comprising a promoter operably linked to a nucleotide sequence encoding a rubredoxin fusion protein comprising an N-terminal rubredoxin constituent and a C-terminal fused polypeptide.

19. The expression vector of claim 18 wherein the fusion protein encoded by the nucleotide sequence further comprises an intervening spacer region positioned between the N-terminal rubredoxin constituent and the C-terminal fused polypeptide.

20. The expression vector of claim 19 wherein the intervening spacer region of the fusion protein encoded by the nucleotide sequence comprises at least one component selected from the group consisting of a proteolytic cleavage site and an affinity purification sequence.

21. A host cell transformed with an expression vector comprising a recombinant polynucleotide comprising a nucleotide sequence encoding a rubredoxin fusion protein comprising an N-terminal rubredoxin constituent and a C-terminal fused polypeptide.

22. The host cell of claim 21 which is a bacterial cell.

23. A method for making a rubredoxin fusion protein comprising:

(a) introducing into a host cell a recombinant polynucleotide comprising a nucleotide sequence encoding a rubredoxin fusion protein comprising an N-terminal rubredoxin constituent and a C-terminal fused polypeptide; and

(b) expressing the fusion protein in the host cell.

24. The method of claim 23 further comprising (c) removing the fusion protein from the host cell.

25. The method of claim 24 further comprising (d) purifying the fusion protein.

26. The method of claim 25 wherein the fusion protein further comprises an affinity tag and step (d) comprises binding the fusion protein to an affinity chromatography matrix.

27. A method for making a polypeptide comprising:

(a) introducing into a host cell a recombinant polynucleotide comprising a nucleotide sequence encoding a rubredoxin fusion protein comprising an N-terminal rubredoxin constituent and a C-terminal fused polypeptide;

(b) expressing the fusion protein in the host cell;

(c) removing the fusion protein from the host cell; and

(d) cleaving the fusion protein to yield the rubredoxin constituent and the polypeptide.

28. The method of claim 27 further comprising (e) separating the polypeptide from the rubredoxin constituent.

29. A rubredoxin fusion protein comprising an N-terminal rubredoxin constituent and a C-terminal fused polypeptide.

30. The rubredoxin fusion protein of claim 29 which is soluble when overexpressed in a host cell.

31. The rubredoxin fusion protein of claim 29 wherein the fused polypeptide, when not covalently linked to the rubredoxin constituent, forms inclusion bodies when overexpressed in a host cell.

32. The rubredoxin fusion protein of claim 29 wherein C-terminal fused polypeptide is a detectably labeled polypeptide.

33. The rubredoxin fusion protein of claim 29 wherein the C-terminal fused polypeptide is selected from the group consisting of an amyloid peptide, leptin, proinsulin, trypsin inhibitor, the extracellular domain of luteinizing hormone receptor, and a biologically active fragment, modification or analogue of any of the preceding polypeptides.

34. The rubredoxin fusion protein of claim 33 wherein the C-terminal fused polypeptide is an amyloid peptide or a biologically active fragment, modification or analogue thereof.

35. The rubredoxin fusion protein of claim 29 wherein the N-terminal rubredoxin constituent is cleavably linked to the C-terminal fused polypeptide.

36. The rubredoxin fusion protein of claim 29 further comprising an intervening spacer region positioned between the N-terminal rubredoxin constituent and the C-terminal fused polypeptide.

37. The rubredoxin fusion protein of claim 36 wherein the intervening spacer region comprises at least one component selected from the group consisting of a cleavage site and an affinity purification sequence.

38. A method for making an antibody comprising eliciting in a host cell an immune response to an antigen comprising a rubredoxin fusion protein comprising a N-terminal rubredoxin constituent and a C-terminal fused polypeptide to yield antibodies to the fused polypeptide.

39. The method of claim 38 wherein the antibody is a polyclonal antibody.

40. The method of claim 38 wherein the antibody is a monoclonal antibody.

41. The method of claim 38 where the antibody is not cross-reactive with rubredoxin.

42. A vaccine comprising at least one component selected from the group consisting of:

(a) a rubredoxin fusion protein comprising an N-terminal rubredoxin constituent and a C-terminal fused polypeptide; and

(b) a polynucleotide comprising a nucleotide sequence encoding said rubredoxin fusion protein.

43. The vaccine of claim 42 wherein the N-terminal rubredoxin constituent is directly linked to the C-terminal fused polypeptide.

44. The vaccine of claim 42 further comprising an adjuvant.

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